The Maryland Fruit Grower

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J. WALTER ENGLAR

With sincere regret we announce the death of Mr. J. Walter Englar at his residence in New Windsor, on Thursday, October 18, 1934. Mr. Englar had been in rather poor health for the past year, but being a conscientious, hard worker, he insisted upon carrying on the harvesting and packing operations at the Mount Olivet Orchards of which he was part owner, and superintendent. He was taken ill on Wednesday evening, and passed away the following afternoon.

Mr. Englar was 59 years of age. For many years he had been active in church and social affairs. He served as president of the Maryland State Horticultural Society during the year 1926, and the Summer Field Meeting of the Society at New Windsor in 1930 at which Mr. Englar was our host, will be long remembered as one of the most delightful and instructive in the Society's history.

To know Walter Englar was to love and admire him. To partake of the hospitality of his house was to know the meaning of Maryland hospitality: To have his counsel was a privilege.

Mr. Englar is survived by a sister, Mrs. Margaret Englar Bixler, his wife having passed away in June, 1932.

STOP THOSE MICE

The mimeographed instructions accompanying the October issue gave instructions for mouse control by poison bait. We have discussed this topic each year, and possibly other people's views will be interesting. Mr. A. H. Teske of Virginia writes in Virginia Extension News:

"Do you know that a single pair of mice can, in five seasons, multiply to two million individuals if left uncontrolled by disease, enemies or natural causes? And do you know that it requires from 24 to 36 pounds of food a year to keep one of these mice alive? How much bark must your trees sacrifice a year to keep your crop of mice thriving? In other words, just how alarming is the mouse situation in your orchard? It is safe to say that you do not know just what damage is being done by these mice for they are quiet and underhand workers, and very steady workers, too.

The holes around the trees do not always give a clear idea of what is going on underground around the roots. In one case last summer the writer, observing a very weak tree in an orchard, dug around the roots in search of mouse damage after being assured by the grower that no mice were present, and found to the grower's surprise and dismay, that the main roots leading from the trunk had been completely girdled for a distance of almost two feet.

"It has been stated that a large apple tree bearing heavy crops will return interest equal to a valuation of one hundred dollars. Compared to the value of your tree, a few cents spent for poison bait or a few extra man hours of labor is a small item. You can't afford to risk losing these valuable trees.

"The habits of mice and the method of control are both simple. There are usually two different kinds of mice found in the orchard. The common field or meadow mouse and the pine mouse. The meadow mouse works on top of the ground, burrowing under grass, leaves and rubbish. It feeds on the exposed roots and on the trunk at the surface of the ground. The damaged areas are more easily seen than those made by the pine mouse.

'The pine mouse is a more underhand worker and of the two is to be feared most. It lives entirely underground, feeding on the bark of the roots. Not until the leaves begin to yellow and the trees begin to die is it realized that the roots have been badly damaged by the pine mouse. The tree at this stage is beyond saving. If the damage is noticed in time, bridge grafting can be used effectively in saving the tree.

"Trees in sod usually suffer greater damage since the grass offers excellent protection for mice. The grass likewise conceals the damaged areas and conceals the holes on the ground about the tree, making it difficult to determine just how fast the mice are working.

"If your orchard is in sod, use every possible means to keep the mice in check. There are several methods used to control this pest and in badly infested orchards every means should be employed to reduce the mice and their breeding quarters.

"In a sod orchard, breaking the ground with a 'weed hog' in effective in destroying large numbers of the mice and in breaking up their breeding quarters. It is a wise practice to clear the ground around the tree trunk of all grass and rubbish for a distance of three or four feet. This exposes the mice to many of their natural enemies and discourages the work of the meadow mice since they do not like to feed in the open. However, if much dirt is removed, fresh dirt should be piled back over the exposed roots and trunk as

a protection against winter injury.

"The most effective method of controlling the mice is by poison bait.

"The bait should be distributed immediately after the fruit has been harvested. It is necessary to distribute the bait in containers commonly known as bait stations. These containers protect the bait from the weather and keep it out of reach of birds and other wild life. Tin cans with the lids turned in or out, large mouthed bottles, or homemade wooden stations may be used. There are also commercial bait stations on the market. Cans and bottles should be so placed as to keep rain out.

"A spoonful of this bait is sufficient in each container. A container or station should be placed under each tree in heavily infested orchards. Where the infestation is light, containers may be placed in every other row. These stations should be examined at least twice during the winter and refilled if necessary.

"A spoonful of the bait should be thrown into the burrows of pine mice where it can be reached easily.

"It is not uncommon for mice to work on apple trees through the summer. This is borne out by the heavy damage of the last season which has been widespread over the state. The dry weather of the last few years has given the mice an excellent opportunity to multiply rapidly. It means, also, that they will feed more abundantly on the apple bark since other vegetation offers little in the way of food during dry periods. Start your mouse eradication program now."

THE RUSSETING OF APPLES

With the appearance of considerable russet on fruit at harvest, this year the remarks of Dr. J. H. Gourley and Mr. Leon Havis of Ohio experiment Station, following their experiments in causes of fruit russeting, should be of interest. Parts of their discussion as found in Ohio Bimonthly Bulletin, July-August 1934, follow:

"Among and blemishes that mar the surface of fruits and, thus, lower their attractiveness and market value, russeting takes a prominent place. Some of this trouble is beyond the control of the orchardist and some can undoubtedly be prevented, or at least mitigated.

"Russeting is a natural response of the plant to injury and any thing that lessens the injury likewise lessens the russeting. In case the injury is not extensive, the injured cells are replaced with cork ones, which give the surface a russet appearance. The russeting may be slight or extensive, depending on the variety of fruit and the extent of injury. Frequent cases of russeting occur from purely mechanical causes, such as limb rubs, insect injuries, and hail marks.

Topography

"Of all the factors associated with russeting, none is more pronounced than the topography of the land, in that it operates indirectly with the causal agents involved in russeting. In 1933 there were many examples of this in Ohio. In an orchard situated on land which is undulating or where depressions or coves occur, the fruit on the higher land where air drainage is good

was much freer of russet than was that in the portions where the air is confined. All factors which cause or accentuate russeting operate more successfully under such conditions. If russeting occurs on the tops of the hills, it is usually due to improper spraying in the location or, as occasionally happens, to frost injury on high land.

Weather

"As a direct causal agent unfavorable weather conditions more universally bring about russeting than any other. The experienced orchardist is aware that blemished apples are found whether or not the orchard was sprayed and regardless of the material used in spraying. The two outstanding elements of the weather which seem to be responsible are low temperatures, often accompanied by frost, and high humidity—usually both together. This is especially true when the fruit is very young or even before bloom. Bands of russet on pears and apples have long been associated with low temperatures and are known as 'frost rings', or the injury may take the form of 'tear stains' (that is, streaks of russet extending lengthwise of the fruit). Slight injury from this cause takes the form of veining, which is a thinly spread injury covering most of the surface of the apples, especially the apical or calyx end.

"Later in the season high temperatures may cause sun scald of the fruit, as is mentioned later.

Variety

"Varieties vary markedly in their susceptibility to russeting. Some of the best ones are particularly susceptible and special precautions must be taken to avoid it. Among the varieties most easily russeted are Golden Delicious, Grimes Golden, Jonathan, and Cortland. Delicious and McIntosh are least likely to show it. Improper sprays or methods of spraying are especially serious with these varieties that have a tendency towards this trouble. Bordeaux mixture is the chief offender with the Ben Davis family, and, in fact, it is more likely to cause damage with all varieties than lime-sulfur.

Sprays

"It is obvious from the foregoing discussion that the orchardist can do little to avoid russeting resulting from topography or weather or that found in certain varieties. However, there is much that he can do in the matter of spraying. Some of the most recent, outstanding work in this field has to do with this particular problem. Insects and diseases must be controlled, but, at the same time, the fruit must have a clear skin and attractive finish. Likewise, the foliage must be uninjured. The situation had become so bad a few years ago that many orchards were being seriously injured by sprays of too great concentration applied with too high pressure. In this regard advances have been made in our knowledge and practice.

"The standard bordeaux of a few years ago was 4-4-50; later, 3-4-50, 4-6-50, 1-3-50, and same ¾-2¼-50 formulas were used. Obviously, there is no 'standard' bordeaux for fruit trees, since the formula is being constantly changed and is also used at different strengths for pre-blossom and post-blossom applications. Likewise, both liquid and dry lime-sulfur are being diluted to half their former strength for the cover sprays, with a material reduction in russeting of fruit and injury to the foliage. Scab and Brooks

spot have been controlled up to 90 per cent or better.

"In addition to reducing injury and improving the finish of fruit by dilute formulas of bordeaux and lime-sulfur, the addition of extra lime (5 pounds to 50 gallons) to the latter solution has proven of value for the same purpose. Particularly has the characteristic browning or burning about the calyx, due to arsenicals been greatly reduced. Bordeaux injury is likely to develop progressively through the season; whereas lime-sulfur burning may be immediate. The same is true, respectively, of certain bordeaux and sulfur dusts.

"These new formulas, together with proper timing and skill in spraying, are powerful tools by which the orchardist may reduce the amount of spray injury. In fact, such varieties as Golden Delicious and Baldwin, which are easily russeted, can frequently be sprayed with arsenicals and lime only (for cover sprays) since they are not very susceptible to scab. Already, much has been accomplished as a result of these experiments in securing a better finish of fruit.

Temperature at Time of Spraying

"Low temperatures are involved in the early sprays (pre-blossom) and high temperatures in the midsummer sprays, but both are to be reckoned with in spraying. Since rain or high humidity accentuates the russeting problem in the early-season spraying (during the 'pink') when the temperature is unseasonably low, such conditions contribute to the trouble. However, the high temperatures of midsummer are particularly serious, especially when lime-sulfur and oils are used. The exact temperature at which injury would occur will probably vary, depending upon the variety and atmospheric conditions. The writers are not particularly concerned with other types of injury than burning or russeting in this paper, although entire destruction of flower clusters may occur if the sprays are too concentrated, improperly mixed, or applied at a critical stage of development of the leaves and bud clusters. When the summer temperatures are above 82 degrees F. the danger point has been reached, although injury may occur somewhat below this point or require a few degrees higher.

"Typical sun scald occurs frequently when no spraying is done. This occurs on the exposed cheeks of the apples, mostly on the south and southwest sides of the tree, but it is not frequently increased when sulfur sprays are used at high temperatures. Drops of water act as lenses which converge the sun's rays and kill the underlying cells.

Gun Injury

"One of the common causes of burning and other types of injury is the improper handling of the spray gun. Since the operator regulates the size of the opening in the disc, causing a coarse spray to be driven to the tops of the trees, or conversely, closes it so that the spray is a fine mist as he works the lower portions of the tree, the results depend entirely upon his skill. If the opening is not regulated constantly as he throws the spray at the different heights, serious injury is likely to occur. This injury is largely mechanical, as it results in a coarse stream striking the tender skin and foliage rather than a fine mist. This type of high-pressure spraying, at from 400 to 600 pounds pressure, caused extensive injury in 1933.

"Such injury is accentuated if the material is coarse—i. e., incompletely

dissolved in the solution. All of these factors are within the control of the operator and the responsibility for injury cannot be shifted elsewhere, as is the case with certain other factors.

Tender Foliage

The past season was one in which the weather conditions were such during the pre-blossom period as to develop very tender foliage. Cloudy, rainy weather that permitted scab development to a great extent also resulted in foliage such as would develop in shade—that is, almost blanched. When high-pressure outfits were used to apply concentrated solutions, particularly if the nozzle adjustments were not correct, they wrought extensive injury. This is one of the situations where adaption to conditions and resourcesfulness bring their reward.

Vigor of Tree

"Here we have a typical physiological condition which results in increased susceptibility to russet. It is not easy to assign definite causes for it, but one must resort to the experience of orchardists and research workers who seem to agree in their observation that the fruit and foliage of weak trees are more easily damaged than those on healthy specimens.

"Obviously, the only remedy would be applications of nitrogenous fertilizers or better cultural conditions, such as cultivation, soil drainage, removal of borers, or other causes of the weakened condition.

APPLES FOR PEP

The secret has leaked out that Pepper Martin, the famous baseball player eats apples daily. At least Virginia Fruit reports this fact. Little wonder that the St. Louis Cardinals won the World Series. Apples for Health as well as for Pepper.

FROST IN ORCHARD SOILS

Special Circular 45 from Ohio Agricultural Experiment Station, Wooster, reports depth of frost penetration in orchard soils at the Wooster farm.

In February there were 9 days of sub-zero temperature. There were 13 inches of snowfall, but during some of the coldest days, the ground was bare. Temperature began to moderate on February 28 and on March 3, diggings and borings were made to find depth of frozen soil. Measurements were taken near the outer edge of the tree spread, in various parts of the different orchard plots. Type of soil is not given, but it is some type of clay loam.

Treatments and depths of frozen soil (inches) on March 3, 1924, follow:—Apple orchards—decayed mulch 2; new mulch 3; clean cultivation 12; sod not mulched 8; sod 10; timothy hay mulch 2; oat straw mulch 1.5; Lespedeza sod 9; old sod not mulched 10: new sod not mulched 11.3. Cherry orchard—clean culture with manure 14. Peach orchard—clean culture 16.5; clean culture with manure 13. Plum orchard—old sod 11. Grape vineyard—cover crop 10.5.

USED BASKETS

The question of using second-hand baskets has been discussed at various fruit growers' meetings in the past few years, and nothing has come of it. Possibly nothing will. Some states require that fruit in used baskets must contain only the marks of the grower, erasing all other marks. There may be some unfavorable reaction to a grower whose name had not been removed from the lid of a basket, and that basket was packed as a used basket, with poor fruit. These are days of close buying and selling, and growers must use their own judgment as to whether or not second-hand baskets are adapted to their marketing conditions. In "Hoosier Horticulture", September, 1934, this question, written up in the following manner is given, without comment, for the consideration of our growers:

"A few months ago a large basket manufacturing concern requested several fruit exchanges in Michigan to express their opinions in regard to the use of second-hand containers in the handling and transporting of fruit. It is quite probable that most growers are about as much concerned about this practice as are manufacturers of baskets. Extracts from some of the letters at least give the following illuminating facts on the subject:

'There are many reasons why we disapprove of this practice and consider it should be controlled in some way at least so far as closed containers are concerned.

'One of the principal reasons is that a trucker will come here to our exchange and purchase a load of A grade apples and will sell them but reserve the baskets with our name and the original variety of apples marked A grade 2½" minimum on the covers. He takes these baskets and goes to some farmer and buys a load of apples, perhaps orchard run with culls out, and puts them in the baskets he got from our place with the above mentioned marks on the covers. He then goes to some distant market and sells them for A grade apples from the . . . Fruit Exchange as they can see by the markings on the covers. Perhaps he gets more than the apples are worth because of the markings, but when the customer opens them up and starts to use them he immediately begins to cuss our Exchange for putting out such a dishonest pack, and tells all his friends to keep away from the . . . Fruit Exchange as there is a sample of our A grade pack and he or his friends will never know but what that is exactly where they came from. Therefore, we suffer severely for something that we are not to blame for and know nothing about, and of course other exchanges suffer in the same way.

'Another reason is the possibility of carrying and spreading insects and diseases from one section to another. Besides many truckers and farmers often use dirty, old, unattractive looking baskets which tend to give the fruit an unfavorable appearance, all of which has the effect of depressing the market.

'If those who desire to handle fruit without the cost of a package were compelled to use open orchard crates without any marking we feel it would be an improvement over the present plan. There is scarcely a day during the fruit season but what one or more truckers drive up here with their rack partly filled with second hand baskets and covers with all kinds of marks on them and wanting to buy fruit to fill those baskets and they pay no attention to what kind of fruit they put in said baskets or what kind of marks are on the covers.

'Please do not consider us as one of those who desire to see the trucks

forced off the roads by taxation because we feel the truckers are a great asset to the fruit growers in distributing thousands of bushels of fruit that would otherwise find no market, and at a very reasonable cost and many people in other sections now have all the fruit they want when otherwise they would go without . . . We do feel that some regulations in regard to the use of second-hand closed packages would not be out of the way.'

"Another exchange says: 'The spread of insects and diseases cannot be denied by anyone who gives it serious thought, but the equally great damage of the appearance and lower sales of fruit within the package has been contested by some who have never had the opportunity of seeing the package after it had arrived at the consuming point. At the time of packing it may seem that there is little or no difference between the appearance of the fruit when packed in a reasonably clean, apparently strong, used package, but I will venture to say that the same packer, if he were on the receiving end, would select a package of fruit that was put up in a fresh, new basket in preference to the one he had packed and considered "good enough."

'It is my opinion that the majority of Michigan growers do not favor the use of used packages of any kind, and would be in favor of making it compulsory, if this would be possible, for all Michigan fruits to be packed and shipped in new containers.'

"Another letter brings in other viewpoints: 'For a long time I have had something on my chest, which, for a lot of reasons, the department should look into. I refer to the use and abuse of second-hand bushel baskets. A good many of them are being carried back into the State of Michigan by truckers and offered for sale at the buyer's price. It is needless for me to tell you the damage which probably already has occurred by this practice, not to mention the possible effect it may have had on our own local package manufacturers.

'It seems that a good many of the diseases and insects to fruit trees and possible spread of same might be traced directly to this practice. Outside of this question there is always the unfair part of competition which enters into the matter. Good fruit is often put into these packages because of their cheapness and the value of the fruit destroyed because of the fact that they are put into unsanitary, brokendown, unattractive packages.

'I do not know that it would be possible but it seems to me the time has come when something should be done. Personally I would like to see an embargo placed on used packages coming into Michigan. Probably there would be some objection in this matter, but I think it would be largely overruled by the majority of packers and shippers, soon forgotten by the rest and in the end somebody would get a lot of thanks for the movement.'

"Thus we see it is very much a matter of education by one method or another. Common 'horse sense' judgment should convince every grower and packer that it is poor policy to pack fruit in any kind of a closed container with some other individual or firm name already printed on the lid. Such practices can quickly cause much harm as indicated in some of the extracts from the Michigan letters."

PATRONIZE OUR ADVERTISERS.

Orator—"The man who gives in when he is wrong is a wise man, but the man who gives in when he's right is - - - ".

"Married", chirped a weak, but manly voice in the audience.

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